**Sample Curriculum Content Review: Atomic Structure and Function**

*B2.1 Use appropriate terminology related to chemical trends and chemical bonding, including but not limited to: atomic radius, effective nuclear charge, electronegativity, ionization energy, and electron affinity [C]*

*B3.3 State the periodic law, and explain how patterns in the electron arrangement and forces in atoms results in periodic trends (e.g., in atomic radius, ionization energy, election affinity, electron negativity) in the periodic table.*

It is important that students are able to understand the structure of the atom in relationship to the Atomic Number and Atomic Mass.

Each student can use the following Atomic Numbers and draw a Bohr-Rutherford diagram for the appropriate elements in the periodic table (only elements and protons).

|  |  |  |  |
| --- | --- | --- | --- |
| #3 | #4 | #9 | #10 |
| #11 | #6 | #7 | #18 |
| #19 | #20 |  |  |

* In groups (3-4), discuss your drawings and make comparisons.
* One person in the group, goes to the board and draws *One* Bohr-Rutherford diagram (i.e., 9 groups – 9 elements); (N.B. The organization on the board should resemble atomic number – layout on the handout.)
* Use the supporting magnetic element cards, and place the appropriate card beside your Bohr-Rutherford Diagram.
* In Groups – Compare the various elements and come up with your own interpretation of one trend/pattern that you are seeing from this activity. (What are other trends that could be interpreted, e.g., IE, EA, EN, size).
* Pick any atom and describe how it would chemical behave (or function) based on your current understanding of the atom (and the Octet Rule)…(i.e., Atomic number 3 – has one electron – easy to get rid of to become energetically stable (happy)
* Use your white board, divide your board into half; and show ion formation of the following elements and explain why. Group - (a) Ca and S; Na and O (b) C and Cl; and C and F.
* What *type of bonds* are formed between each of the paired elements in group (a) and (b), and which is the *stronger bond* within group (a) and group (b)?